Collective TCP Control for Improved Wireless Network Performance

Abstract of Disclosure

A web-enabled cell phone communicates to Internet servers over a radio link. Multiple connections for web browsing or email are combined into a single persistent connection or pipe over the radio link between a client agent running on the cell phone and a TCP proxy. Combining connections allows for better use of the available bandwidth on the radio link. Wireless acceleration cards on servers gather packet loss statistics that are sent to a collective TCP control (CTC). Losses for connections between a client-server pair are aggregated, and aggregate losses are compared to a threshold. When the aggregate losses are below the threshold, the losses are likely to be sporadic radio-link losses. When the aggregate losses are above the threshold, the losses are likely due to router congestion. TCP parameters can be better adjusted based on whether the losses are radio or router losses.

Figures